We claim:

1. A process for improving the thermal stability of polymers comprising blending, before melt processing, (1) a polymer selected from the group consisting of (a) olefin polymers, (b) polymers of vinyl-substituted aromatic compounds, (c) polymers of acrylic esters selected from the group consisting of (i) an ester of an acrylic acid substituted at the alpha-carbon atom by a 1-3 C alkyl group, and (ii) a combination of (i) and at least one monomer capable of being polymerized by free radicals, and (d) graft copolymers comprising a backbone of a propylene polymer material having graft polymerized thereto a monomer selected from the group consisting of (i) an ester of an acrylic acid substituted at the alpha-carbon atom by a 1-3 C alkyl group, and (ii) a combination of (i) and at least one monomer capable of being polymerized by free radicals, and (2) about 0.1% to about 5%, based on the weight of the polymer, of at least one aliphatic compound having at least one site of unsaturation, the compound having a molecular weight of at least 200 and an iodine number of at least 10.

2. The process of claim 1 wherein the polyolefin is a propylene homopolymer.

3. The process of claim 1 wherein the vinyl-substituted aromatic compound is selected from the group consisting of (a) styrene, (b) alpha-methylstyrene, and (c) ring-substituted styrenes.

4. The process of claim 1 wherein the polymer of an acrylic ester is poly(methyl methacrylate).

5. The process of claim 1 wherein the propylene polymer material backbone of the graft copolymer is selected from the group consisting of:

(a) a crystalline homopolymer of propylene having an isotactic index greater than 80;

(b) a crystalline copolymer of propylene and an olefin selected from the group consisting of ethylene and 4-10 C alpha-olefins, provided that when the olefin is ethylene, the maximum polymerized ethylene content is 10% by weight, and when the olefin is a 4-10 C alpha-olefin, the maximum polymerized content thereof is 20%, the copolymer having an isotactic index greater than 85;

(c) a crystalline terpolymer of propylene and two olefins selected from the group consisting of ethylene and 4-8 C alpha-olefins, provided that the maximum polymerized 4-8 C alpha-olefin content is 20% by weight, and, when ethylene is one of the olefins, the maximum polymerized ethylene content is 5% by weight, the terpolymer having an isotactic index greater than 85;

(d) an olefin polymer composition comprising:

(i) about 10% to about 60% by weight of a crystalline propylene homopolymer having an isotactic index greater than 80, or a crystalline copolymer of monomers selected from the group consisting of (a) propylene and ethylene, (b) propylene, ethylene and a 4-8 C alpha-olefin, and (c) propylene and a 4-8 C alpha-olefin, the copolymer having a polymerized propylene content of more than 85% by weight, and an isotactic index greater than 85;

(ii) about 5% to about 25% of a copolymer of ethylene and propylene or a 4-8 C alpha-olefin that is insoluble in xylene at ambient temperature, and

(iii) about 30% to about 70% of an elastomeric copolymer of monomers selected from the group consisting of (a) ethylene and propylene, (b) ethylene, propylene, and a 4-8 C alpha-olefin, and (c) ethylene and a 4-8 C alpha-olefin, the copolymer optionally containing about 0.5% to about 10% of a diene, and containing less than 70% by weight of polymerized ethylene and being soluble in xylene at ambient temperature, and having an intrinsic viscosity of about 1.5 to about 4.0 dl/g,

wherein the total amount of (ii) and (iii), based on the total olefin polymer composition, is about 50% to about 90%, the weight ratio of (ii)/(iii) is less than 0.4, and the composition is prepared by polymerization in at least two stages, and has a flexural modulus of less than 150 MPa; and

(e) a thermoplastic olefin comprising:

(i) about 10% to about 60% of a crystalline propylene homopolymer having an isotactic index greater than 80, or a crystalline copolymer of

monomers selected from the group consisting of (a) ethylene and propylene, (b) ethylene, propylene, and a 4-8 C alpha-olefin, and (c) ethylene and a 4-8 C alpha-olefin, the copolymer having a polymerized propylene content greater than 85% and an isotactic index of greater than 85;

(ii) about 20% to about 60% of an amorphous copolymer of monomers selected from the group consisting of (a) ethylene and propylene, (b) ethylene, propylene, and a 4-8 C alpha-olefin, and (c) ethylene and a 4-8 C alpha-olefin, the copolymer optionally containing about 0.5% to about 10% of a diene and containing less than 70% polymerized ethylene and being soluble in xylene at ambient temperature; and

(iii) about 3% to about 40% of a copolymer of ethylene and propylene or a 4-8 C alpha-olefin that is insoluble in xylene at ambient temperature,

wherein the composition has a flexural modulus of greater than 150 but less than 1200 MPa.

6. The process of claim 5 wherein the propylene polymer material is a propylene homopolymer.

7. The process of claim 1 wherein the monomers graft polymerized to the backbone of propylene polymer material are methyl methacrylate and methyl acrylate.

8. The process of claim 1 wherein the monomers graft polymerized to the backbone of propylene polymer material are methyl methacrylate and methacrylic acid.

9. The process of claim 1 wherein the monomers graft polymerized to the backbone of propylene polymer material are methyl methacrylate and styrene.

10. The process of claim 1 wherein the unsaturated aliphatic compound is selected from the group consisting of fatty oils, squalene, polybutadiene, and unsaturated aliphatic amine compounds.

11. The process of claim 10 wherein the fatty oil is selected from the group consisting of (a) soybean oil, (b) safflower oil, and (c) linseed oil.

12. The product produced by the process of claim 1.

13. A composition comprising (1) a polymer selected from the group consisting of (a) polymers of vinyl-substituted aromatic compounds, (b) polymers of acrylic esters selected from the group consisting of (i) an ester of an acrylic acid substituted at the alpha-carbon atom by a 1-3 C alkyl group, and (ii) a combination of (i) and at least one monomer capable of being polymerized by free radicals, and (c) graft copolymers comprising a backbone of a propylene polymer material having graft polymerized thereto a monomer selected from the group consisting of (i) an ester of an acrylic acid substituted at the alpha-carbon atom by a 1-3 C alkyl group, and (ii) a combination of (i) and at least one monomer capable of being polymerized by free radicals, and (2) about 0.1% to about 5%, based on the weight of the polymer, of at least one aliphatic compound having at least one site of unsaturation, the compound having a molecular weight of at least 200 and an iodine number of at least 10.

14. The composition of claim 13 wherein the polyolefin is a propylene homopolymer.

15. The composition of claim 13 wherein the vinyl-substituted aromatic compound is selected from the group consisting of (a) styrene, (b) alpha-methylstyrene, and (c) ring-substituted styrenes.

16. The composition of claim 13 wherein the polymer of an acrylic ester is poly(methyl methacrylate).

17. The composition of claim 13 wherein the propylene polymer material backbone of the graft copolymer is selected from the group consisting of:

(a) a crystalline homopolymer of propylene having an isotactic index greater than 80;

(b) a crystalline copolymer of propylene and an olefin selected from the group consisting of ethylene and 4-10 C alpha-olefins, provided that when the olefin is ethylene, the maximum polymerized ethylene content is 10% by weight, and when the olefin is a 4-10 C alpha-olefin, the maximum polymerized content thereof is 20%, the copolymer having an isotactic index greater than 85;

(c) a crystalline terpolymer of propylene and two olefins selected from the group consisting of ethylene and 4-8 C alpha-olefins, provided that the maximum polymerized 4-8 C alpha-olefin content is 20% by weight, and, when ethylene is one of the olefins, the maximum polymerized ethylene content is 5% by weight, the terpolymer having an isotactic index greater than 85;

(d) an olefin polymer composition comprising:

(i) about 10% to about 60% by weight of a crystalline propylene homopolymer having an isotactic index greater than 80, or a crystalline copolymer of monomers selected from the group consisting of (a) propylene and ethylene, (b) propylene, ethylene and a 4-8 C alpha-olefin, and (c) propylene and a 4-8 C alpha-olefin, the copolymer having a polymerized propylene content of more than 85% by weight, and an isotactic index greater than 85;

(ii) about 5% to about 25% of a copolymer of ethylene and propylene or a 4-8 C alpha-olefin that is insoluble in xylene at ambient temperature, and

(iii) about 30% to about 70% of an elastomeric copolymer of monomers selected from the group consisting of (a) ethylene and propylene, (b) ethylene, propylene, and a 4-8 C alpha-olefin, and (c) ethylene and a 4-8 C alpha-olefin, the copolymer optionally containing about 0.5% to about 10% of a diene, and containing less than 70% by weight of polymerized ethylene and being soluble in xylene at ambient temperature, and having an intrinsic viscosity of about 1.5 to about 4.0 dl/g,

wherein the total amount of (ii) and (iii), based on the total olefin polymer composition, is about 50% to about 90%, the weight ratio of (ii)/(iii) is less than 0.4, and the composition is prepared by polymerization in at least two stages, and has a flexural modulus of less than 150 MPa; and

(e) a thermoplastic olefin comprising:

(i) about 10% to about 60% of a crystalline propylene homopolymer having an isotactic index greater than 80, or a crystalline copolymer of

monomers selected from the group consisting of (a) ethylene and propylene, (b) ethylene, propylene, and a 4-8 C alpha-olefin, and (c) ethylene and a 4-8 C alpha-olefin, the copolymer having a polymerized propylene content greater than 85% and an isotactic index of greater than 85;

(ii) about 20% to about 60% of an amorphous copolymer of monomers selected from the group consisting of (a) ethylene and propylene, (b) ethylene, propylene, and a 4-8 C alpha-olefin, and (c) ethylene and a 4-8 C alpha-olefin, the copolymer optionally containing about 0.5% to about 10% of a diene and containing less than 70% polymerized ethylene and being soluble in xylene at ambient temperature; and

(iii) about 3% to about 40% of a copolymer of ethylene and propylene or a 4-8 C alpha-olefin that is insoluble in xylene at ambient temperature,

wherein the composition has a flexural modulus of greater than 150 but less than 1200 MPa.

18. The composition of claim 17 wherein the propylene polymer material is a propylene homopolymer.

19. The composition of claim 13 wherein the monomers graft polymerized to the backbone of propylene polymer material are methyl methacrylate and methyl acrylate.

20. The composition of claim 13 wherein the monomers graft polymerized to the backbone of propylene polymer material are methyl methacrylate and methacrylic acid.

21. The composition of claim 13 wherein the monomers graft polymerized to the backbone of propylene polymer material are methyl methacrylate and styrene.

22. The composition of claim 13 wherein the unsaturated aliphatic compound is selected from the group consisting of fatty oils, squalene, polybutadiene, and unsaturated aliphatic amine compounds.

23. The composition of claim 22 wherein the fatty oil is selected from the group consisting of (a) soybean oil, (b) safflower oil, and (c) linseed oil.

24. The composition of claim 13 which further comprises from about 2% to about 30%, based on the total weight of the composition, of one or more rubber components selected from the group consisting of (a) an olefin copolymer rubber, (b) a monoalkenyl aromatic hydrocarbon-conjugated diene block copolymer, and (c) a core-shell rubber.

25. The composition of claim 13 which further comprises from about 5% to about 90%, based on the total weight of the composition, of a broad molecular weight distribution propylene polymer material having a M_w/M_n of about 5 to about 60 and a melt flow rate of about 0.5 to about 50 g/10 min.

26. The composition of claim 24 which further comprises from about 5% to about 90%, based on the total weight of the composition, of a broad molecular weight distribution propylene polymer material having a M_w/M_n of about 5 to about 60 and a melt flow rate of about 0.5 to about 50 g/10 min.